

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: March 17, 2001, 09:43:21 ; Search time 20.85 Seconds

(without alignments)
249.762 Million cell updates/sec

Title: US-09-451-291-1

Perfect score: 1511

Sequence: 1 MRIFAVETFWTHLNAFT.....KCGIDPTNSKQSDTHLEEN 290

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 174772 seqs, 17957048 residues

Total number of hits satisfying chosen parameters: 174772

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :
1: Issued_Patents_AA:*
2: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
3: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
4: /cgn2_6/ptodata/2/1aa/6.COMB.pep:*
5: /cgn2_6/ptodata/2/1aa/PTOUS.COMB.pep:*
6: /cgn2_6/ptodata/2/1aa/Backfile1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query	Match Length	ID	Description
1	177.5	11.7	306	2	US-08-147-772-4
2	177.5	11.7	306	2	US-08-456-104-8
3	177.5	11.7	306	2	US-08-101-624-25
4	177.5	11.7	306	3	US-08-153-262-4
5	177.5	11.7	306	3	US-08-479-744A-31
6	177.5	11.7	306	3	US-08-280-757B-31
7	177.5	11.7	306	3	US-09-159-135-4
8	172	11.4	288	2	US-08-147-772-2
9	172	11.4	288	2	US-08-456-104-6
10	172	11.4	288	2	US-08-101-624-23
11	172	11.4	288	2	US-08-751-767A-6
12	172	11.4	288	3	US-08-153-262-2
13	172	11.4	288	3	US-08-479-744A-29
14	172	11.4	288	3	US-08-280-757B-29
15	172	11.4	288	3	US-09-159-135-2
16	172	11.4	288	4	PCT-US95-02576-19
17	169.5	11.2	306	4	PCT-US95-02576-17
18	169.5	11.2	306	4	PCT-US95-02576-2
19	161.5	10.7	323	4	PCT-US94-09642-2
20	161.5	10.7	329	2	US-08-456-104-2
21	161.5	10.7	329	2	US-08-101-624-2
22	161.5	10.7	329	3	US-08-479-744A-2
23	161.5	10.7	329	3	US-08-280-757B-2
24	161.5	10.7	329	4	PCT-US95-02576-23
25	158.5	10.5	208	3	US-08-630-172-15
26	154.5	10.2	589	2	US-08-724-394A-1
27	144	9.5	581	2	US-08-724-394A-3
28	139.5	9.2	319	1	US-08-597-495B-22

29	138	9.1	581	2	US-08-724-394A-2	Sequence 2, Appli
30	137	9.1	365	2	US-08-979-424-3	Sequence 3, Appli
31	127.5	8.4	309	2	US-08-456-104-4	Sequence 4, Appli
32	127.5	8.4	309	3	US-08-479-744A-23	Sequence 23, Appli
33	127.5	8.4	309	3	US-08-280-757B-23	Sequence 23, Appli
34	127.5	8.4	309	4	PCT-US95-02576-21	Sequence 21, Appli
35	127.5	8.4	314	4	PCT-US95-02576-13	Sequence 13, Appli
36	126	8.3	1106	4	US-08-180-195-2	Sequence 2, Appli
37	126	8.3	1106	1	US-08-168-917-2	Sequence 2, Appli
38	126	8.3	1106	1	US-08-477-329-2	Sequence 2, Appli
39	126	8.3	1106	2	US-08-475-458-2	Sequence 2, Appli
40	126	8.3	1106	2	US-08-460-510-2	Sequence 2, Appli
41	126	8.3	1106	2	US-08-460-490-2	Sequence 2, Appli
42	126	8.3	1106	3	US-08-980-400-2	Sequence 2, Appli
43	126	8.3	1106	3	US-08-462-728-4	Sequence 4, Appli
44	126	8.3	1106	4	PCT-US92-00730-2	Sequence 2, Appli
45	126	8.3	1106	4	PCT-US92-00862-2	Sequence 2, Appli

ALIGNMENTS

RESULT 1
US-08-147-772-4
Sequence 4, Application US/08147772
Patent No. 5858776 *
GENERAL INFORMATION:
APPLICANT: Ostrand-Rosenberg, Suzanne
APPLICANT: Baskar, Sivasubramanian
APPLICANT: Glincher, Laurie H.
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
TITLE OF INVENTION: Tumor Cells With Increased Immunogenicity
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/147,772
FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: Superfamily member; T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways, binds to CD28+
FEATURE:
NAME/KEY: signal sequence
LOCATION: -37 to -1

1. AUTHORS: GRAY, GARY S.
 2. AUTHORS: GIMAI, CLAUDE D.
 3. AUTHORS: LOMBARD, DAVID B.
 4. AUTHORS: ZHOU, LIANG-JI
 5. AUTHORS: WHITE, MICHAEL
 6. AUTHORS: FINGERKOTH, JOYCE D.
 7. AUTHORS: GRIBBEN, JOHN G.
 8. AUTHORS: MADLER, LEE M.
 9. TITLE: Structure, Expression, and T Cell Costimulatory
 10. TITLE: Activity Of The Murine Homologue Of The Human B
 11. TITLE: Lymphocyte Activation Antigen B7
 12. JOURNAL: Journal of Experimental Medicine
 13. VOLUME:
 14. ISSUE:
 15. PAGES:
 16. DATE: IN PRESS
 17. RELEVANT RESIDUES IN SEQ ID NO: 25: From -37 to 269
 18. OS-08-101-624-25

Query Matched: 11.7%; Score 177.5; DB 2, Length 306;
Best Local Similarity 26.6%; Pred. No. 3.4e-10;
Matches 57; Conservative 36; Mismatches 92; Indels 29; Gaps 11.

QY 55 VVEMEDKNIIOFVGCEEDIKVQHSHSYRQRALLKDQLSLNALQTITPVKLQDAGVRC 114
 ::: |:: :|: ||: |:: |:: |:: |:: |:: |:: |::
Db IYWOKHDKRVVLVSIAKK--LKY-WREYNRR--LYDNNTY---SLIILGLVLSDRGTYS C 119

QY 115 MI-----SYGADRYKRITYKANAPYKNINORILAVD--PYTSEHLTGQA E-GPKAE 164
 ::: |:: |:: |:: |:: |:: |:: |:: |:: |:: |::
Db 120 VWAKRGRTGYGVKHLLALVKLSIKADFSTPN----ITESGNPSADTKRITCFASGGPFR 175

QY 165 VMTSSDOHVLSKTTTNNSRKREELEFNVTSLRNINTNTEIFLTPTRRIDPENNTAEL 224
Db 176 FSVLENGRE-LFGINTTTSODPESELTYTSSQLDFENTTRHTTIKLIKYGDA---HYSED 231

QY 225 VIPELPLAPPNERTHLVTLGAIIILCLGVALTFI 258
 |--|:: |:: |:: |:: |:: |:: |:: |:: |:: |::
Db 232 FTWEKPDPDPDSKNMLVFGE---GFCAVITVV 262

RESULT 4
US-08-153-262-4 ; Sequence 4, Application US/08153262
; Patent No. 6071716
; GENERAL INFORMATION:
 APPLICANT: FREEMAN, GORDON J.
 APPLICANT: FREEDMAN, ARNOLD S.
 TITLE OF INVENTION: NADLER, LEE M.
 TITLE OF INVENTION: DNA Encoding B7, A New Member
 TITLE OF INVENTION: Of The Igk Superfamily With Unique Expression On
 NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
 ADDRESSER: The Dana-Farber Cancer Institute
 STREET: 44 Binney Street
 CITY: Boston
 STATE: Massachusetts
 COUNTRY: U.S.A.
 ZIP: 02115
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch., 720kb storage
COMPUTER: IBM Personal System 2; Model 30
OPERATING SYSTEM: MS/DOS
SOFTWARE: Wordperfect 5.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/153,262
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/751,306
FILING DATE: 28-AUG-1991
ATTORNEY/AGENT INFORMATION:

NAME: HART, JULIA D.
REGISTRATION NUMBER: 33132
REFERENCE/DOCKET NUMBER: DFCI-116.1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (203) 255-8900
TELEFAX: (203) 255-2846
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: superfamily member; T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways; binds to CD28+
DESCRIPTION: T cells, transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -37 to -1
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 210
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 211 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular (cytoplasmic) domain
LOCATION: 236 to 269
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig V-set domain
LOCATION: 1 to 105
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 106 to 199
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: GRAY, GARY S.
AUTHORS: GIMMI, CLAUDE D.
AUTHORS: LOMBARD, DAVID B.
AUTHORS: ZHOU, LIANG-JI
AUTHORS: WHITE, MICHAEL
AUTHORS: FINGEROTH, JOYCE D.
AUTHORS: GRIBBEN, JOHN G.
AUTHORS: MADLER, LEE M.
TITLE: Structure, Expression, and T Cell Costimulatory
TITLE: Activity Of The Murine Homologue Of The Human B
TITLE: Lymphocyte Activation Antigen B7
JOURNAL: Journal of Experimental Medicine
VOLUME:
ISSUE:
PAGES:
DATE: IN PRESS
RELEVANT RESIDUES IN SEQ ID NO: 4: From -37 to 269
US-08-153-262-4
Query Match 11.7%; Score 177.5; DB 3; Length 306;
Best Local Similarly 26.6%; Pred. No. 3,4e-10;
Matches 57; Conservative 36; Mismatches 92; Indels 29; Gaps 11;

QY 55 VYWMEDKNIOFVGEEDLKVOHSSYRORARLLKPDLSGNALOITWKLODAGVNC 114
DB 68 IYWKHKVVLSTYACK--LKV-WPEYKNFT--LYNTTY---SLIIIGVLSDRGTYSQ 119
QY 115 MI-----SYGADYKRITVKNVAPYKINQRLVVD---PYTSEHLEQDAE-GYPKAE 164
DB 120 VYQKKEGTYGVKHLALVKLSIKADFSTP---ITESCNPASDTJRTICFASGGEPPKR 175
QY 165 VYTSSDHOVLSGKTTTTSKREKLFENVYSLIRINTTTEIYCFRRDRPENTAE 224
DB 176 FSWLENGRE-LPGINTTISODPESELTYTSSQLDFMTTRHTIKCLIKYDA---HVSDE 231
QY 225 VPEPLAHPNERTHLVILGAILLCIGVALTFE 258
DB 232 FTWEKPEDEPPDSKNLVLFGA---GFGAVITYV 262
RESULT 5
US-08-479-744A-31
Sequence 31, Application US/08479744A
Patent No. 6084067
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: No. 6084067el CTLA4/CD28 ligands and
TITLE OF INVENTION: Uses Therefor
NUMBER OF SEQUENCES: 35
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD, LLP
STREET: 60 State Street
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/479,744A
FILING DATE: June 7, 1995
CLASSIFICATION: 435
PRIORITY APPLICATION DATA:
APPLICATION NUMBER: 08/280,757
FILING DATE: 26-JUL-1994
APPLICATION NUMBER: 08/109,393
FILING DATE: 28-AUG-1993
APPLICATION NUMBER: 08/101,624
FILING DATE: 26-JULY-1993
APPLICATION NUMBER: 08/147,773
FILING DATE: 3-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004CP3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 31:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: superfamily member; T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways; binds to CD28+
DESCRIPTION: T cells, transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -37 to -1

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Query Match 11.7% Score 177.5; DB 3, Length 306;
Best Local Similarity 26.6%; Pred. No.3,4e-10;
Matches 57; Conservative 36; Mismatches 92; Indels 29; Gaps 11.

QY 55 VYWMEDKNITQFVHGEEEDLKVOHSSYRQARILKDLQSLGNALQITDVKLODAGYRC 114
      :: | | : : | | : : | | : : | | : : | | : : | | : : | | : : | |
Db 68 IYMKHKHKKVLSYIAK--LKY-WPEYKNRT--LYDNTTY---SLIILGYLSDRGTYSC 119

QY 115 MI-----SYGADYKRITVKNVADYKINORIILVVD---PVTSEHELTCQAE-GYPKAE 164
      :: | | : : | | : : | | : : | | : : | | : : | | : : | | : : | |
Db 120 VVQKKEGTVGYVHIALVYKLSIKADPSPNP---ITEGNNSAPTKRITITFASGGEPPKR 175

QY 165 VIWTSSSHQVLSKTTTNSKREELFNVTSLRINTTNEIFYCTRRRLDPENHHAEL 224
      | | : : | | : : | | : : | | : : | | : : | | : : | | : : | |
Db 176 FSWLENGRE-LPEINTTISQDESELEYLTISOLDENFTNRHETIKCLIKYGA--HVSDE 231

QY 225 VIPELPLAHPNERTHLVIGAILDLGLVALTFI 258
      | | | | : : | | : : | | : : | | : : | | : : | | : : | |
Db 232 FTWEKPPEDPPDSKNTLVLFGA---GGAIVTIV 262

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Sequence 31, Application US/08280757B
Patent No. 6130316

GENERAL INFORMATION:

APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
APPLICANT: Greenfield, Edward
TITLE OF INVENTION: No. 6130316el CTM4/CD28 Ligands and
NUMBER OF SEQUENCES: 53

CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
City: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
OPERATING SYSTEM: IBM PC compatible
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/280,757B
FILING DATE: 26-Jul-1994
CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/101,624
FILING DATE: 26-Jul-1993
APPLICATION NUMBER: 08/109,393
FILING DATE: 19-Aug-1993
APPLICATION NUMBER: 08/147,773
FILING DATE: 3-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004CP2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 31:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear

MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: superfamily member, T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways, binds to CD28-
DESCRIPTION: T cells, transmembrane protein

FEATURE:

NAME/KEY: signal sequence
LOCATION: -37 to -1
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
OTHER INFORMATION: hydrophobic

FEATURE:

NAME/KEY: extracellular domain
LOCATION: 1 to 210
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence

FEATURE:

NAME/KEY: transmembrane domain
LOCATION: 211 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence

FEATURE:

NAME/KEY: intracellular (cytoplasmic) domain
LOCATION: 236 to 269
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence

FEATURE:

NAME/KEY: Ig V-set domain

LOCATION: 1 to 105
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 106 to 199
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: GRAY, GARY S.
AUTHORS: GIMMI, CLAUDE D.
AUTHORS: LOMBARD, DAVID B.
AUTHORS: ZHOU, LIANG-JI
AUTHORS: WHITE, MICHAEL
AUTHORS: FINGEROTH, JOYCE D.
AUTHORS: GRIBBEN, JOHN G.
AUTHORS: NADLER, LEE M.
TITLE: Structure, Expression, and T Cell Costimulatory
TITLE: Activity Of The Murine Homologue Of The Human B
TITLE: Lymphocyte Activation Antigen B7
JOURNAL: Journal of Experimental Medicine
VOLUME:
ISSUE:
PAGES:
DATE: IN PRESS
RELEVANT RESIDUES IN SEQ ID NO: 31: From -37 to 269
US-08-280-757B-31

Query Match 11.78; Score 177.5; DB 3; Length 306;
Best Local Similarity 26.68; Pred. No. 3,4e-10;
Matches 57; Conservative 36; Mismatches 92; Indels 29; Gaps 11;

QY 55 VYWMEDKNIIFQHGDEDKVHSSYRQARLKLKDLISNALQITDVKLQDAGVYRC 114
DB 68 IYWKHKRVVSLVSTAGK-LKV-WPEYKNTT-LYDNTTY---SLIIGLVLSRGRITSC 119
QY 115 MI-----SYGADYKRIITVKNAPYKINORILVVD---PVTSEHETLCOAE-GYPRAE 164
DB 120 VYQKRGKGTGVKHLAVKLSIKADFSPPN---ITSGNPSADTKRITCFASGGFPRPR 175
QY 165 VYMTSSHOVLGSKTTTNTNSKREKLEFNVTSTLRINTTNEIFCTRRRLDPEENHNAEL 224
DB 176 FSWMENGRE-LPGINTTISQPESELEYTISQDLDPFTTRNHTIKLKYGDA---HVSSED 231
QY 225 VYELPLAHPNERTHVIIGAILLCGVALTFI 258
DB 232 FYWEKPPEDPDPSKNTLVFGA---GFGAVITTV 262

RESULT 7
US-09-159-135-4
Sequence 4, Application US/09159135
Patent No. 6149905
GENERAL INFORMATION:
APPLICANT: Ostrand-Rosenberg, Suzanne
APPLICANT: Baskar, Silvasubramanian
APPLICANT: Glimcher, Laurie H.
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
TITLE OF INVENTION: Tumor Cells With Increased Immunogenicity
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/159,135
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/147,772
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: superfamily member; T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways, binds to CD28+
DESCRIPTION: T cells, transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -37 to -1
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 210
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 211 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular (cytoplasmic) domain
LOCATION: 236 to 269
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig V-set domain
LOCATION: 1 to 105
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 106 to 199
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: GRAY, GARY S.
AUTHORS: GIMMI, CLAUDE D.
AUTHORS: LOMBARD, DAVID B.
AUTHORS: ZHOU, LIANG-JI
AUTHORS: WHITE, MICHAEL
AUTHORS: FINGEROTH, JOYCE D.
AUTHORS: GRIBBEN, JOHN G.
AUTHORS: NADLER, LEE M.
TITLE: Structure, Expression, and T Cell Costimulatory
TITLE: Activity Of The Murine Homologue Of The Human B
TITLE: Lymphocyte Activation Antigen B7
JOURNAL: Journal of Experimental Medicine
VOLUME:
ISSUE:

AUTHORS: FREEMAN, GORDON J.

AUTHORS: FREEMAN, GORDON J.

1. AUTHORS: FREEDMAN, ARNOLD S.
 2. AUTHORS: SEGIL, JEFFREY M.
 3. AUTHORS: LEE, GRACE
 4. AUTHORS: WHITMAN, JAMES F.
 5. AUTHORS: NADLER, LEE M.
 6. TITLE: B7, A New Member Of The Ig Superfamily With
 7. TITLE: Unique Expression On Activated And Neoplastic B Cells
 8. JOURNAL: The Journal of Immunology
 9. VOLUME: 143
 10. ISSUE: 8
 11. PAGES: 2714-2722
 12. DATE: 15-OCT-1989
 13. RELEVANT RESIDUES IN SEQ ID NO: 2: From -26 to 262
 14. US-08-147-772-2

Query Match	11.48:	Score 172;	DB 2;	Length 288;
Best Local Similarity	22.18:	Pred. No. 1.1e-09;		
Matches	58;	Conservative	56;	Mismatches 97;
				Indels 52;
				Gaps 12

RESULT 9
 US-08-456-104-6
 ; Sequence 6, Application US/08456104
 ; Patent No. 5861310
 ;
 ; GENERAL INFORMATION:
 ;
 APPLICANT: Freeman, Gordon J.
 APPLICANT: Nadler, Lee M.
 APPLICANT: Gray, Gary S.
 TITLE OF INVENTION: TUMOR CELLS MODIFIED TO EXPRESS B7-2 AND B7-3 WITH INCREASED
 NUMBER OF SEQUENCES: 8
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: LAHIVE & COCKFIELD
 STREET: 60 State Street, Suite 510
 CITY: Boston
 STATE: Massachusetts
 COUNTRY: USA
 ZIP: 02109
 ;
 ; COMPUTER READABLE FORM:
 ; MEDIUM TYPE: Floppy disk
 ; COMPUTER: IBM PC compatible
 ; OPERATING SYSTEM: PC-DOS/MS-DOS
 ; SOFTWARE: PatentIn Release #1.0, Version #1.25
 ;
 ; CURRENT APPLICATION DATA:
 ; APPLICATION NUMBER: US/08/456,104
 ;
 ; FILING DATE:
 ; CLASSIFICATION: 424
 ;
 ; PRIOR APPLICATION DATA:
 ; APPLICATION NUMBER: 08/101,624;
 ; FILING DATE: 26-JUL-1993;
 ; APPLICATION NUMBER: 08/109,393;
 ; APPLICATION NUMBER: 19-AUG-1993
 ;
 ; ATTORNEY/AGENT INFORMATION:
 ;

```

? NAME: Mandiragouras, Amy E.
? REGISTRATION NUMBER: 36,207
? REFERENCE/DOCKET NUMBER: RPI-0008
? TELECOMMUNICATION INFORMATION:
? TELEPHONE: (617) 227-7400
? TELEFAX: (617) 227-5941
? INFORMATION FOR SEQ ID NO: 6:
? SEQUENCE CHARACTERISTICS:
? LENGTH: 288 amino acids
? TYPE: amino acid
? TOPOLOGY: linear
? MOLECULE TYPE: protein
US-08-456-104-6

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Query Match	11.4%	Score 172	DB 2:	Length 288;
Best Local Similarity	22.1%	Pred. No. 1	1e-09;	
Matches	58;	Conservative	97;	Indels 52;
				Gaps 12;

RESULT 10
US-08-101-624-23
Sequence 23 Application US/08101624
Patent No. 5942807
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: No. 5942607el CTM4/CD28 Ligands and
TITLE OF INVENTION: Uses Therefor
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
City: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/101,624
FILING DATE: 26-JUL-1993
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Mandrigouras, Amy E.
REGISTRATION NUMBER: 36,207


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FEATURE:
NAME/KEY: Ig V-set domain
LOCATION: 1 to 104
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 105 to 202
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: FREEDMAN, ARNOLD S.
AUTHORS: SEBIL, JEFFREY M.
AUTHORS: LEE, GRACE
AUTHORS: WHITMAN, JAMES F.
AUTHORS: NADLER, LEE M.
TITLE: B7, A New Member Of The Ig Superfamily With
TITLE: Unique Expression On Activated And Neoplastic B cells
JOURNAL: The Journal of Immunology
VOLUME: 143
ISSUE: 8
PAGES: 2714-2722
DATE: 15-OCT-1989
RELEVANT RESIDUES IN SEQ ID NO: 23: From -26 to 262
US-08-101-624-23

Query Match 11.4% Score 172; DB 2; Length 288;
Best Local Similarity 22.1%; Pred. No. 1.1e-09;
Matches 58; Conservative 56; Mismatches 97; Indels 52; Gaps 12.

QY 25 KDLYVEVGSNMTECKFEVEKQDLAALIYWEKDKNIQFVHGEGEDLVHSSYRQ 84
D 43 KEVALTSCGHNVSE-----ELAQTRIVYQKEKKMVLTMSSGDMNIMPVYKN--- 89
QY 85 ARLLKQDLSIGNAALDITVYKLDAGVYRCMI-STGCADYKR-----ITVYVNAFYNE 136
D 90 -RTTFD--ITNNLSIYIALRPSDEGTGYCVALKYKDAFREHLAEVLTSLADPTPS 146
QY 137 INQRIIVDPVTSHEHLLQGAEGYPAKEVIMTSSDHQVLSGKTTTNSKRE KLEFVNS 195
D 147 ISDPEI---PTSNIRRLICSTSGGFPEPLSLWLENGEE-LNAINTVLSQDPELEVAVSS 202
QY 196 TLRINTTNEIFC-----TFRRDPEENHTAEIVPELTAHPNRTHLVIR 244
D 203 KIDENMTNHSFMCILKYGHLRVNQTFMNNTTKQHFEDNLPSMAL-----TLISVN 255
QY 245 GAILLCGLVALTFIF--RLRGR 265
D 256 GIFVYC---CLTYCFAPRCRERR 275

RESULT 11
US-08-751-767A-6
Sequence 6, Application US/08751767A
Patent No. 5994104
GENERAL INFORMATION:
APPLICANT: ANDERSON, ROBERT J.
APPLICANT: GRANT, HUGH
APPLICANT: MACDONALD, IAN D.
TITLE OF INVENTION: INTERLUKIN-12 FUSION PROTEIN
NUMBER OF SEQUENCES: 80
CORRESPONDENCE ADDRESS:
ADDRESSEE: NIXON & VANDERHAYE P.C.
STREET: 1100 NORTH GLEBE ROAD
CITY: ARLINGTON
STATE: VA
COUNTRY: USA
ZIP: 22201
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible

```

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? OPERATING SYSTEM: PC-DOS/MS-DOS
? SOFTWARE: Patent In Release #1.0, Version #1.30
? CURRENT APPLICATION DATA:
? APPLICATION NUMBER: US/08/751,767A
? FILING DATE: 08-NOV-1996
? CLASSIFICATION: 536
? ATTORNEY/AGENT INFORMATION:
? NAME: SADOFF, B.J.
? REGISTRATION NUMBER: 36,663
? REFERENCE/DOCKET NUMBER: 117-221
? TELECOMMUNICATION INFORMATION:
? TELEPHONE: 7038164091
? TELEFAX: 7038164100
? INFORMATION FOR SEQ ID NO: 6:
? SEQUENCE CHARACTERISTICS:
? LENGTH: 288 amino acids
? TYPE: amino acid
? TOPOLOGY: linear
? MOLECULE TYPE: protein
? OS-08-751-767A-6

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Query Match	11.4%	Score 172;	DB 2;	Length 288;
Best Local Similarity	22.1%	Pred. No. 1	le-09;	
Matches	58;	Conservative	56;	Mismatches 97;
			Indels	52;
			Gaps	12;

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QY      25 KDLVVEGSGSMTECKEFPVEKOLDLAALVYMEEMKNIIOFHPBEDLKVOHSSYR 84
Db      43 KEVATLSCGHNVSE-----ELAQTRIYQKEKKRMVLTMSGDMNTIPEYKN--- 89

QY      85 ARLLKDLQSLGNALQITDVYKLODAGVYRCMI-SYGADYKR-----ITVKNAPYRK 136
Db      90 -RTTFD--ITNNLSIVILALRPSDEGYECVLYEKEDAKREHIAEVLTSYKADFTPT 146

QY      137 INQRIIVADPTSHETLQCAE-CYPAEAVIWTSSDHQVLSKTTTNSKREKLEAVTS 195
Db      147 ISDEI---PTSNRIITICSTGSGFPPHLSMLENGEE-LNAITVYSODETELAVSS 2020

QY      196 TLRINTTNEIFYC-----TERRLDPEENHAEVLVIELPLAPHPNERTHTVIL 2444
Db      203 KLDENNMTTNSFMCILKYGHLRVNQGTENNMTTKQEHFNDILPSMAI-----TILSYN 2555

QY      245 GAILLCUGVALTFIF-RLKGR 265
Db      256 GIFVIC---CLTYCEAPRCRR 275

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RESULT 12
 US-08-153-262-2
 : Sequence 2, Application US/08153262
 : Patent No. 6071716
 : GENERAL INFORMATION:
 : APPLICANT: FREEMAN, GORDON J.
 : APPLICANT: FREEDMAN, ARNOLD S.
 : APPLICANT: NADLER, LEE M.
 : TITLE OF INVENTION: DNA Encoding B7, A New Member
 : TITLE OF INVENTION: Of The IgG Superfamily With Unique Expression On
 : NUMBER OF SEQUENCES: 4
 : CORRESPONDENCE ADDRESS:
 : ADDRESSEE: The Dana-Farber Cancer Institute
 : STREET: 44 Blinney Street
 : CITY: Boston
 : STATE: Massachusetts
 : COUNTRY: U.S.A.
 : ZIP: 02115
 : COMPUTER READABLE FORM:
 : MEDIUM TYPE: Diskette, 3.50 inch, 720kd storage
 : COMPUTER: IBM Personal System 2; Model 30
 : OPERATING SYSTEM: MS/DOS
 : SOFTWARE: WordPerfect 5.0
 : CURRENT APPLICATION DATA:
 : APPLICATION NUMBER: US/08/153,262

```

CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/751,306
FILING DATE: 28-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: HART, JULIA D.
REGISTRATION NUMBER: 33132
REFERENCE/DOCKET NUMBER: DPCT-116.1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (203) 255-8900
TELEFAX: (203) 259-2846
INFORMATION FOR SEQ. ID NO. 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 288 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B cell activation antigen; natural ligand
DESCRIPTION: for CD28 T cell surface antigen; transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -34 to -1
IDENTIFICATION METHOD: amino terminal sequencing of
IDENTIFICATION METHOD: soluble protein
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 208
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 209 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular domain
LOCATION: 236 to 254
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 19 to 21
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 55 to 57
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 64 to 66
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 152 to 154
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 173 to 175
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 177 to 179
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 19 to 21
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence

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LOCATION: 192 to 194
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 198 to 200
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig V-set domain
LOCATION: 1 to 104
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 105 to 202
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEDMAN, GORDON J.
AUTHORS: FREEDMAN, ARNOLD S.
AUTHORS: SEGIL, JEFFREY M.
AUTHORS: LEE, GRACE
AUTHORS: WHITMAN, JAMES F.
AUTHORS: NADLER, LEE M.
TITLE: B7, A New Member Of The Ig Superfamily With
TITLE: Unique Expression On Activated And Neoplastic B Cells
JOURNAL: The Journal of Immunology
VOLUME: 143
ISSUE: 8
PAGES: 2714-2722
DATE: 15-OCT-1989
RELEVANT RESIDUES IN SEQ ID NO: 2: From -26 to 262
US-08-153-262-2

Query Match 11.4%; Score 172; DB 3; Length 288;
Best Local Similarity 22.1%; Pred. No. 1, le-09;
Matches 58; Conservative 56; Mismatches 97; Indels 52; Gaps 12;

QY 25 KDLVYEVGSGNMTECKFPYKQDLALIVWEMEDKNIIQFVHGEEDLKVOHSSYROR 84
D 43 KEVATLSCGNVSE-----ELAQRTIYQKEKKVLTVMGSDMNIMPEYKN---- 89
QY 85 ARLLKQDLSGNAALQTTVDKLDAGYRCMT-SYGGADYKR-----ITVYVNAFYNK 136
D 90 -RTIFD--ITNNLSIVLALRPSDEGYECVLYKEDAFKREHLAEVTLVYADPPPS 146
QY 137 INQRIILVVDVTSBHELTQAE-GYPRAEVYIWTSSDHOVLSGKTTTNSKREKLEFNVS 195
D 147 ISDFEIT--PTSNIRRLITCSGFPFPHLSWLENGEE-LNAINTIVSQDPELELAVSS 202
QY 196 TLRINTTNEIFYC-----TFRRLDPEENHTAEVLVPELPLAHPNERTHLVIL 244
D 203 KLDFNMNTNSMFLIKYGLHVRNQFNMNTTKQEHFDPDLPSMAI-----TLISVW 255
QY 245 GAILLCIGVALTFP--RLKGR 265
D 256 GIFVIC--CLTYCEAFRCRERR 275

RESULT 13
US-08-479-744A-29
Sequence 29, Application US/08479744A
Patent No. 6084067
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: No. 6084067el CTLA4/CD28 Ligands and
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:

ADDRESSEE: LAHIVE & COCKFIELD, LLP
STREET: 60 State Street
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentln Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/479,744A
FILING DATE: June 7, 1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/280,757
FILING DATE: 26-JUL-1994
APPLICATION NUMBER: 08/109,393
FILING DATE: 28-AUG-1993
APPLICATION NUMBER: 08/101,624
FILING DATE: 26-JULY-1993
APPLICATION NUMBER: 08/147,773
FILING DATE: 3-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004CP3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 29:
SEQUENCE CHARACTERISTICS:
LENGTH: 288 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B cell activation antigen; natural ligand
DESCRIPTION: for CD28 T cell surface antigen; transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -34 to -1
IDENTIFICATION METHOD: amino terminal sequencing of
IDENTIFICATION METHOD: soluble protein
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 208
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 209 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular domain
LOCATION: 236 to 254
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 19 to 21
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 55 to 57
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: N-linked glycosylation
LOCATION: 64 to 66

[illegible]

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: March 17, 2001, 09:44:51 ; Search time 20.85 Seconds
(Without alignments)
249.762 Million cell updates/sec

Title: US-09-451-291-3
Perfect score: 1516
Sequence: 1 MRFAGIETACHLRAFT.....KGVEDTSSKNRNDTQFEET 290

Scoring table:
BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 174772 seqs, 17957048 residues

Total number of hits satisfying chosen parameters: 174772

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: /cgn2_6/prodata/2/iaa/5b_COMB.pep:*
2: /cgn2_6/prodata/2/iaa/5b_COMB.pep:*
3: /cgn2_6/prodata/2/iaa/6_COMB.pep:*
4: /cgn2_6/prodata/2/iaa/PCTUS_COMB.pep:*
5: /cgn2_6/prodata/2/iaa/Backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
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2	192	12.7	306 2	US-08-456-104-8 Sequence 8, Appli
3	192	12.7	306 2	US-08-101-624-25 Sequence 25, Appli
4	192	12.7	306 3	US-08-153-262-4 Sequence 4, Appli
5	192	12.7	306 3	US-08-479-744A-31 Sequence 31, Appli
6	192	12.7	306 3	US-08-280-757B-31 Sequence 31, Appli
7	192	12.7	306 3	US-09-159-135-4 Sequence 17, Appli
8	184	12.1	306 4	PCT-US95-02576-17 Sequence 2, Appli
9	177	11.7	320 4	PCT-US95-02576-2 Sequence 2, Appli
10	176.5	11.6	323 4	PCT-US94-09642-2 Sequence 2, Appli
11	176.5	11.6	329 2	US-08-456-104-2 Sequence 2, Appli
12	176.5	11.6	329 2	US-08-101-624-2 Sequence 2, Appli
13	176.5	11.6	329 3	US-08-479-744A-2 Sequence 2, Appli
14	176.5	11.6	329 3	US-08-280-757B-23 Sequence 2, Appli
15	176.5	11.6	329 4	PCT-US95-02576-23 Sequence 23, Appli
16	176	11.6	589 2	US-08-724-394A-1 Sequence 1, Appli
17	173.5	11.6	581 2	US-08-724-394A-3 Sequence 3, Appli
18	160	10.6	365 2	US-08-979-424-3 Sequence 3, Appli
19	159.5	10.5	288 2	US-08-147-772-2 Sequence 6, Appli
20	159.5	10.5	288 2	US-08-456-104-6 Sequence 6, Appli
21	159.5	10.5	288 2	US-08-101-624-23 Sequence 23, Appli
22	159.5	10.5	288 3	US-08-153-262-2 Sequence 6, Appli
23	159.5	10.5	288 3	US-08-479-744A-29 Sequence 29, Appli
24	159.5	10.5	288 3	US-08-280-757B-29 Sequence 29, Appli
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26	159.5	10.5	288 4	PCT-US95-02576-19 Sequence 19, Appli
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29	152.5	10.1	581 2	US-08-724-394A-2 Sequence 2, Appli
30	146.5	9.7	342 2	US-08-724-394A-6 Sequence 6, Appli
31	144	9.5	540 2	US-08-724-394A-4 Sequence 4, Appli
32	135	8.9	610 2	US-08-724-394A-5 Sequence 5, Appli
33	124	8.2	309 2	US-08-456-104-4 Sequence 4, Appli
34	124	8.2	309 3	US-08-479-744A-23 Sequence 23, Appli
35	124	8.2	309 3	US-08-280-757B-23 Sequence 23, Appli
36	124	8.2	309 4	PCT-US95-02576-21 Sequence 21, Appli
37	124	8.2	314 4	PCT-US95-02576-13 Sequence 13, Appli
38	119.5	7.9	388 3	US-09-188-930-275 Sequence 275, App
39	119.5	7.9	553 2	US-08-263-911-9 Sequence 9, Appli
40	118	7.8	281 1	US-08-487-748A-9 Sequence 9, Appli
41	118	7.8	281 1	US-08-487-748A-10 Sequence 10, Appli
42	118	7.8	281 3	US-08-480-070C-10 Sequence 10, Appli
43	118	7.7	281 3	US-08-829-525-10 Sequence 10, Appli
44	116.5	7.7	110 3	US-08-479-744A-45 Sequence 45, Appli
45	116.5	7.7	110 3	US-08-280-757B-45 Sequence 45, Appli

ALIGNMENTS

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RESULT 1
US-08-147-772-4
; Sequence 4, Application US/08147772
; Patent No. 5858776
;
GENERAL INFORMATION:
;
APPLICANT: Ostrand-Rosenberg, Suzanne
APPLICANT: Baskar, Sivabramanian
APPLICANT: Glmcher, Laurie H.
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
;
TITLE OF INVENTION: Tumor Cells With Increased Immunogenicity
;
NUMBER OF SEQUENCES: 4
;
CORRESPONDENCE ADDRESS:
;
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
;
COMPUTER READABLE FORM:
;
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
;
APPLICATION NUMBER: US/08/147,772
;
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
;
APPLICATION NUMBER:
;
FILING DATE:
;
ATTORNEY/AGENT INFORMATION:
;
NAME: Mandiagouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-003
TELECOMMUNICATION INFORMATION:
;
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
;
INFORMATION FOR SEQ ID NO: 4:
;
SEQUENCE CHARACTERISTICS:
;
LENGTH: 306 amino acids
;
TYPE: amino acid
;
TOPOLOGY: linear
;
MOLECULE TYPE: protein
;
DESCRIPTION: B lymphocyte activation antigen; Ig
;
DESCRIPTION: Superfamily member; T cell costimulatory signal
;
DESCRIPTION: via activation of CD28 pathways, binds to CD28+
;
FEATURE: T cells, transmembrane protein
;
NAME/KEY: signal sequence
;
LOCATION: -37 to -1
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1 IDENTIFICATION METHOD: similarity with known
2 IDENTIFICATION METHOD: sequence
3 OTHER INFORMATION: hydrophobic
4 FEATURE:
5 NAME/KEY: extracellular domain
6 LOCATION: 1 to 210
7 IDENTIFICATION METHOD: similarity with known
8 IDENTIFICATION METHOD: sequence
9 FEATURE:
10 NAME/KEY: transmembrane domain
11 LOCATION: 211 to 235
12 IDENTIFICATION METHOD: similarity with known
13 IDENTIFICATION METHOD: sequence
14 FEATURE:
15 NAME/KEY: intracellular (cytoplasmic) domain
16 LOCATION: 236 to 269
17 IDENTIFICATION METHOD: similarity with known
18 IDENTIFICATION METHOD: sequence
19 FEATURE:
20 NAME/KEY: Ig V-set domain
21 LOCATION: 1 to 105
22 IDENTIFICATION METHOD: similarity with known
23 IDENTIFICATION METHOD: sequence
24 FEATURE:
25 NAME/KEY: Ig C-set domain
26 LOCATION: 106 to 199
27 IDENTIFICATION METHOD: similarity with known
28 IDENTIFICATION METHOD: sequence
29 PUBLICATION INFORMATION:
30 AUTHORS: FREEMAN, GORDON J.
31 AUTHORS: GRAY, GARY S.
32 AUTHORS: GIMMI, CLAUDE D.
33 AUTHORS: LOWBARD, DAVID B.
34 AUTHORS: ZHOU, LIANG-JI
35 AUTHORS: WHITE, MICHAEL
36 AUTHORS: FINGEROTH, JOYCE D.
37 AUTHORS: GRIBBEN, JOHN G.
38 AUTHORS: NADLER, LEE M.
39 TITLE: Structure, Expression, and T Cell Costimulatory
40 TITLE: Activity Of The Murine Homologue Of The Human B
41 TITLE: Lymphocyte Activation Antigen B7
42 VOLUME: Journal of Experimental Medicine
43 ISSUE:
44 PAGES:
45 DATE: IN PRESS
46 RELEVANT RESIDUES IN SEQ ID NO: 4: FROM -37 to 269

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[illegible]

RESULT 2
US-08-456-104-8
Sequence 8, Application US/08456104
Patent No. 5861310
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: TUMOR CELLS MODIFIED TO EXPRESS B7-2 AND B7-3 WITH INCREASED
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/456,104
FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/101,624;
FILING DATE: 26-JUL-1993;
APPLICATION NUMBER: 08/109,393;
APPLICATION NUMBER: 19-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-008
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-456-104-8

```

Query Match      12.7%; Score 192; DB 2; Length 306;
Best Local Similarity 23.9%; Pred. No. 9, 5e-12;
Matches 63; Conservative 46; Mismatches 117; Indels 38; Gaps
QY VTMECRF--PVERELDLALVYWEKEDQVIOFVAGEEDLKRQHSNFRGRASLPKDOLL
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db 50 VLLPCRYNSPHEDESDR---IYQKHDKVVLVSIVAGLKLWPEY-----KRRTL
94 KQNA--AIOITPVKLQDAGYCCII-----SYGADYKRITILKVNAPYRKINORISVP
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db 97 YNTYTSYLIIIGVLSDRGIYSCVQCKKEGTGVKHKLALVKLISKADFSPINTESGNP
146 ATSEHELICQAE-GYEEAEVIWTSNHQVPYSGKRSVTTSTTEGMLVNTSSLRYNATAND
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db 157 SADTKRITCFASQGFPKPRRSLENGRE-LPGINTTISQPESELVYISSOLDENTFRNH
205 VVYCTFWRSQPGQNTIAELLIPELPHTHPQNTHTWVLGSLILFLIVSTVLLFLKQV
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db 216 ITKCLL--KYGAHNSSEDFTEWKEPREDPDSKNTLVLFAGAGVATVVIVVII---
265 RMLDVEKCGVEDPDTSSKNRNDQFE 288
269 -----KCFCKHRSCEFRRNDASRE 286

```


IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 210
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 211 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular (cytoplasmic) domain
LOCATION: 236 to 269
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig V-set domain
LOCATION: 1 to 105
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig C-set domain
LOCATION: 106 to 199
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: GRAY, GARY S.
AUTHORS: GIMMI, CLAUDE D.
AUTHORS: LOMBARD, DAVID B.
AUTHORS: ZHOU, LIANG-JI
AUTHORS: WHITE, MICHAEL
AUTHORS: FINGERROTH, JOYCE D.
AUTHORS: GRIEBEN, JOHN G.
AUTHORS: NADLER, LEE M.
TITLE: Structure, Expression, and T Cell Costimulatory
TITLE: Activity Of The Murine Homologue Of The Human B
TITLE: Lymphocyte Activation Antigen B7
JOURNAL: Journal of Experimental Medicine
VOLUME:
ISSUE:
PAGE:
DATE: IN PRESS
RELAVANT RESIDUES IN SEQ ID NO: 31: From -37 to 269
US-08-280-757B-31

Query Match 12.7%; Score 192; DB 3; Length 306;
Best Local Similarity 23.9%; Pred. No. 9.5e-12;
Matches 63; Conservative 46; Mismatches 117; Indels 38; Gaps 9;

36 VTMCGRF--PVERLDLALVYWEKEDEYOIVAGEEDIKPOHSNFRGASLPSKQDL 93
50 VLPSCRNSPHEDESER--IYQKHDKVYLSVAGKLKWPPEY-----KNRTL 96
94 KGN--ALQITDKIDAGVYCCII-----SYGADYKRTLVKNAPYKINORISDP 145
97 YDNTTYSILILGLVLSDRGTYSCVYQKKEKRGTYGKHLALYKLSKADFSPTNTESGNP 156
146 ATSHELICQAE-GYPEAEVITWNSDQPVSGKRSVTSRTSGMLNVTSSLRYNATAND 204
157 SADTKRITCFASGFPKPRFSMLNGRE-LPGINTTISQDESELYTISQDENTTNH 215
205 VFYOTFRSGOGNHTAELIPELPAHPONRTHWVLGSLFLVYSTVLLFLKRQV 264
216 TIKLI---KYGDAHVSEDEFTWEKPEPDPDSKNTLVLFAGFAGVITVVIVII--- 268
265 RMLDVEKGVEDTSSKNRNDTOFE 288
269 -----KCFCKHRSCFRNEASRE 286

RESULT 7
US-09-159-135-4
Sequence 4, Application US/09159135
Patent No. 6149905
GENERAL INFORMATION:
APPLICANT: Ostrand-Rosenberg, Suzanne
APPLICANT: Baskar, Sivasubramanian
APPLICANT: Glimcher, Laurie H.
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
TITLE OF INVENTION: Tumor Cells With Increased Immunogenicity
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/159,135
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/147,772
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: B lymphocyte activation antigen; Ig
DESCRIPTION: superfamily member; T cell costimulatory signal
DESCRIPTION: via activation of CD28 pathways, binds to CD28+
DESCRIPTION: T cells, transmembrane protein
FEATURE:
NAME/KEY: signal sequence
LOCATION: -37 to -1
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
OTHER INFORMATION: hydrophobic
FEATURE:
NAME/KEY: extracellular domain
LOCATION: 1 to 210
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: transmembrane domain
LOCATION: 211 to 235
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: intracellular (cytoplasmic) domain
LOCATION: 236 to 269
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: Ig V-set domain

LOCATION: 1 to 105
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
FEATURE:
NAME/KEY: 1g C-set domain
LOCATION: 106 to 199
IDENTIFICATION METHOD: similarity with known
IDENTIFICATION METHOD: sequence
PUBLICATION INFORMATION:
AUTHORS: FREEMAN, GORDON J.
AUTHORS: GRAY, GARY S.
AUTHORS: GIMMI, CLAUDE D.
AUTHORS: LOMBARD, DAVID B.
AUTHORS: ZHOU, LIANG-JI
AUTHORS: WHITE, MICHAEL
AUTHORS: FINGEROTH, JOYCE D.
AUTHORS: GRIBBEN, JOHN G.
AUTHORS: NADLER, LEE M.
TITLE: Structure, Expression, and T Cell Costimulatory
TITLE: Activity of The Murine Homologue Of The Human B
TITLE: Lymphocyte Activation Antigen B7
JOURNAL: Journal of Experimental Medicine
VOLUME:
ISSUE:
PAGES:
DATE: IN PRESS
RELEVANT RESIDUES IN SEQ ID NO: 4: From -37 to 269
US-09-159-135-4

Query Match 12.7%; Score 192; DB 3; Length 306;
Best Local Similarity 23.9%; Pred. No. 9.5e-12;
Matches 63; Conservative 46; Mismatches 117; Indels 38; Gaps 9;

QY 36 VTMECRF--PVERELDLALVYWEKEDQVIOFVAGEEDLKPOHSNFRGRASLPKQDL 93
DB 50 VLLPCRYNSPHDESEDR--IYQKHDKVVLVSIAGKIKVWPEY-----KNRTL 96
QY 94 KGN--ALQITVYKIQDAGVYCCII-----SYGADYKRTILKVNAPYKINQRIQSDP 145
DB 97 YDNTYTSLLILGLVLSRGYSCVQKKERGTGVKHLALVKLSIKADSTPNITSGNP 156
QY 146 ATSEHELICQAE-GYPEAEVIWNSDHPVSGKRSVTSRTSGMLNVTSSLRVNATAND 204
DB 157 SADTKRITCFASGFPKPRFSMLENGRE-LPGINTTISQDESELYTTSQDLDFNTTNNH 215
QY 205 VFYCTFWRSGPQNTAEILIPELPATHPQNRTHVLLGSILFLIVSTVLLFLRKQV 264
DB 216 TIKCLL---KYGDAVSEDFTEWKEPPEDPDSKNTLVLFAGFGAVITVVIVVIL---- 268
QY 265 RMLDVEKCGVEDTSSKNRNDTOFE 288
DB 269 -----KCFCKHRSCEFRRNEASRE 286

RESULT 8
PCT-US95-02576-17
Sequence 17, Application PC/TUS9502576
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: Novel Forms of T Cell Costimulatory Molecules
TITLE OF INVENTION: and Uses Therefor
NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109-1875
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/02576
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/205,697
FILING DATE: 02-Mar-1994
ATTORNEY/AGENT INFORMATION:
NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: BWI-120CPPC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEX: (617)227-5941
INFORMATION FOR SEQ ID NO: 17:
SEQUENCE CHARACTERISTICS:
LENGTH: 306 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US95-02576-17

Query Match 12.1%; Score 184; DB 4; Length 306;
Best Local Similarity 23.5%; Pred. No. 6.3e-11;
Matches 62; Conservative 46; Mismatches 118; Indels 38; Gaps 9;

QY 36 VTMECRF--PVERELDLALVYWEKEDQVIOFVAGEEDLKPOHSNFRGRASLPKQDL 93
DB 50 VLLPCRYNSPHDESEDR--IYQKHDKVVLVSIAGKIKVWPEY-----KNRTL 96
QY 94 KGN--ALQITVYKIQDAGVYCCII-----SYGADYKRTILKVNAPYKINQRIQSDP 145
DB 97 YDNTYTSLLILGLVLSRGYSCVQKKERGTGVKHLALVKLSIKADSTPNITSGNP 156
QY 146 ATSEHELICQAE-GYPEAEVIWNSDHPVSGKRSVTSRTSGMLNVTSSLRVNATAND 204
DB 157 SADTKRITCFASGFPKPRFSMLENGRE-LPGINTTISQDESELYTTSQDLDFNTTNNH 215
QY 205 VFYCTFWRSGPQNTAEILIPELPATHPQNRTHVLLGSILFLIVSTVLLFLRKQV 264
DB 216 TIKCLL---KYGDAVSEDFTEWKEPPEDPDSKNTLVLFAGFGAVITVVIVVIL---- 268
QY 265 RMLDVEKCGVEDTSSKNRNDTOFE 288
DB 269 -----KCFCKHRSCEFRRNEASRE 286

RESULT 9
PCT-US95-02576-2
Sequence 2, Application PC/TUS9502576
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: Novel Forms of T Cell Costimulatory Molecules
TITLE OF INVENTION: and Uses Therefor
NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109-1875
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/02576
FILING DATE:
PRIOR APPLICATION DATA:

```

      APPLICATION NUMBER: US 08/205,697
      FILING DATE: 02-Mar-1994
      ATTORNEY/AGENT INFORMATION:
        NAME: Mandragoras, Amy E.
        REGISTRATION NUMBER: 36,207
        REFERENCE/DOCKET NUMBER: BWI-120CPDC
        TELECOMMUNICATION INFORMATION:
          TELEPHONE: (617)227-7400
          TELEFAX: (617)227-5941
      INFORMATION FOR SEQ ID NO: 2:
        SEQUENCE CHARACTERISTICS:
          LENGTH: 320 amino acids
          TYPE: amino acid
          TOPOLOGY: linear
      MOLECULE TYPE: protein
      PCT-US95-02576-2

Query Match              11.7%; Score 177; DB 4; Length 320;
Best Local Similarity    23.6%; Pred. No. 3.5e-10;
Matches   56; Conservative 45; Mismatches 106; Indels 28; Gaps 8

QY  36 VTMECRF--PVERELDLALVYWEKEDEQVIFVAGEEDLKPQHSNFRGRASLPKDLL 93
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
Db  50 VLLPERVNSPHDESEDR---IYNQKHKKVLSVLAGKIKAKWPEY-----KNRTL 96
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
QY  94 KGN A--AQITDVKIQDAGVCIT-----SYGADVKRRLTKVNAPRKINQRI SDP 145
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
Db  97 YDNFTYSIIILGLVLDSDGTSCVQKRKERGTVEVKHLALVLTSLKADFSTPNITESGP 156
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
QY  146 ATSEHELCOAE-GYPEAEVIMTNSDHQPSGKRSVTTSRTSGMLLVNTSILRVNATAD 204
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
Db  157 SADTKRIICFGSGFKPKRFPSWLENGRE-LPGINTTISODPESELXTYTSSQLDFMTNRH 215
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
QY  205 VFYCETFWRSQGQNHTAELLIPELPATHPQQRTHMVLGSIILLIVYSTVLFLR 261
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :
Db  216 TIKCLI---KKGDVAIVSEDFTWEKRPDPDPDSKNTLVLFGAQFAYTVYVAVLIILK 269
      | : || : - - - - - : || : - - - - - : || : - - - - - : || :

RESULT 10
PCT-US94-09642-2
Sequence 2, Application PC/TUS9409642
GENERAL INFORMATION:
  APPLICANT:
  TITLE OF INVENTION: Purified Mammalian CTLA-4 Binding
  TITLE OF INVENTION: Protein and Related Reagents
  NUMBER OF SEQUENCES: 2
  CORRESPONDENCE ADDRESS:
  ADDRESSEE: Schering-Plough Corporation, M-3-W
  STREET: One Giralda Farms
  CITY: Madison
  STATE: New Jersey
  COUNTRY: USA
  ZIP: 07940-1000
  COMPUTER READABLE FORM:
  MEDIUM TYPE: Floppy disk
  OPERATING SYSTEM: Apple Macintosh IIcx
  SOFTWARE: Microsoft Word 5.1a
  CURRENT APPLICATION DATA:
  APPLICATION NUMBER: PCT/US94/09642
  FILING DATE:
  CLASSIFICATION:
  PRIOR APPLICATION DATA:
  APPLICATION NUMBER: US 08/120,606
  FILING DATE: 13-SEP-1993
  PRIOR APPLICATION DATA:
  APPLICATION NUMBER: US 08/116,882
  FILING DATE: 03-SEP-1993
  ATTORNEY/AGENT INFORMATION:
  NAME: Blasdale, John H. C.
  REGISTRATION NUMBER: 31,895
  REFERENCE/DOCKET NUMBER: DX0390K1

```

```

      TELECOMMUNICATION INFORMATION:
      TELEPHONE: 201-822-7398
      TELEFAX: 201-822-7039
      INFORMATION FOR SEQ ID NO: 2:
      SEQUENCE CHARACTERISTICS:
      LENGTH: 323 amino acids
      TYPE: amino acid
      TOPOLOGY: linear
      MOLECULE TYPE: protein
      PCT-US94-09642-2

Query Match          11.6%; Score 176.5; DB 4; Length 323;
Best Local Similarity 23.1%; Pred. No. 4e-10;
Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

Y 18 AFTTAPADLVVEX-GSNVTMECFPERELDLALVYWKEDEQYTOFY-AGEDLK 75
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 11 AFLSGAPRLKIQAFNETHADLPQOFANSQNOSLSELYVFMDQENLVLENYLYCKEFD 70
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Y 76 FOHSNFRGRASLPKDQLLKGNAAIQITDVKLQDAGVCCIISYGADYKRITLKNAYR 135
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 71 SVHSKVMGRTSPDD-----SWTLRLHNLIQIKDKGLYCII-----HHKKPIGMIR--IH 118
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Y 136 KINQRISTDPATSEHELL-----CQA-EETPEAEVWTNSHQDPVSGKRSV 180
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 119 QMSNELSVIANFSOPEIVIPISNITENVYINTCSSIHGYPEPK-----KMSV 165
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Y 181 -----TSRNREGM-----LNAVTSILRV---NATANDVEYC-----TFWRSQP 215
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 166 LTRKNTSTIEFDGIQKSQDNVELTDYSISLSVSFPVTSNMIFCLLETDKIRLLSSP 225
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Y 216 GQNHATLELIELPAHPNPONKTHWV--LLGSILLELVISTVLFLRKQVRMLDVERCG 273
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 226 ---FSIELEDPPPDHP-----WITAVLPVIICVWFCLLMKKMKRRPRNSYKCG 277
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Y 274 VEDTSSKRNNDTOFE 289
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |
Db 278 TMTMERESQTKRE 293
    ||| | : | : | : | : | : | : | : | : | : | : | : | : |

RESULT 11
US-08-456-104-2
Sequence 2, Application US/08456104
Patent No. 5861310
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
TITLE OF INVENTION: TUMOR CELLS MODIFIED TO EXPRESS B7-2 AND B7-3 WITH INCREASED CORRESPONDENCE ADDRESS:
ADDRESS: LAHYE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/456,104
FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/101,624;
FILING DATE: 26-JUL-1993;
APPLICATION NUMBER: 08/109,393;
APPLICATION NUMBER: 19-AUG-1993
ATTORNEY/AGENT INFORMATION:

```

NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-008
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 329 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-456-104-2

Query Match 11.6%; Score 176.5; DB 2; Length 329;
Best Local Similarity 23.1%; Pred. No. 4.1e-10;
Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

QY 18 AFTTAPKDLVVEY-GSNVTMECRFPVEREDLALVYWEKEDQVIOFV-AGEEDLK 75
DB 17 AFLISGAAPLKIOAYFNETADLPQCFANSQNSLSLVEVFWQDENLVINEVYLKKEFD 76
QY 76 PQHSNFRGRASLPKQDLKGNAALQITDYKLDAGVCCITISYGADYKRTILKVNPYR 135
DB 77 SVHSKYMGRSTFSDS-----SWTLRLHNLQIKDKGLYOCII-----HHKKPTGMIR--IH 124
QY 136 KINQRIISVPATSEHELI-----COA-EGYPAEVIWNSDHPVSGRSY 180
DB 125 QMNSLSVLANSQPEIPIISNTENYINLTCSHIGPEPK-----KMSV 171
QY 181 -----TSRTBGM-----LLNVTSSLRV--NATANDVFC-----TFWRSOP 215
DB 172 LTRKNSSTIEVDIMQKSDNVTLEYDVISLSVSPDVTSMNIFCLLETKTRLISP 231
QY 216 GQNHTELLIPELPATHPQNRTHV--LLGSLFLIYVSTVLLFKQVRLMDVEKCG 273
DB 232 ---FSTLEDPQPPDHP-----WITAVLPYIICVWFCLIMKWKRRPRNSYKCG 283
QY 274 VEDTSSKNNDTOFEE 289
DB 284 TNTMERESQTKKRE 299

RESULT 12
US-08-101-624-2
Sequence 2, Application US/08101624
Patent No. 5942607
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: No. 5942607e1 CTLA4/CD28 ligands and
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/101,624
FILING DATE: 26-JUL-1993
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:

FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 329 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-101-624-2

Query Match 11.6%; Score 176.5; DB 2; Length 329;
Best Local Similarity 23.1%; Pred. No. 4.1e-10;
Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

QY 18 AFTTAPKDLVVEY-GSNVTMECRFPVEREDLALVYWEKEDQVIOFV-AGEEDLK 75
DB 17 AFLISGAAPLKIOAYFNETADLPQCFANSQNSLSLVEVFWQDENLVINEVYLKKEFD 76
QY 76 PQHSNFRGRASLPKQDLKGNAALQITDYKLDAGVCCITISYGADYKRTILKVNPYR 135
DB 77 SVHSKYMGRSTFSDS-----SWTLRLHNLQIKDKGLYOCII-----HHKKPTGMIR--IH 124
QY 136 KINQRIISVPATSEHELI-----COA-EGYPAEVIWNSDHPVSGRSY 180
DB 125 QMNSLSVLANSQPEIPIISNTENYINLTCSHIGPEPK-----KMSV 171
QY 181 -----TSRTBGM-----LLNVTSSLRV--NATANDVFC-----TFWRSOP 215
DB 172 LTRKNSSTIEVDIMQKSDNVTLEYDVISLSVSPDVTSMNIFCLLETKTRLISP 231
QY 216 GQNHTELLIPELPATHPQNRTHV--LLGSLFLIYVSTVLLFKQVRLMDVEKCG 273
DB 232 ---FSTLEDPQPPDHP-----WITAVLPYIICVWFCLIMKWKRRPRNSYKCG 283
QY 274 VEDTSSKNNDTOFEE 289
DB 284 TNTMERESQTKKRE 299

RESULT 13
US-08-479-744A-2
Sequence 2, Application US/08479744A
Patent No. 6084067
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
TITLE OF INVENTION: No. 6084067e1 CTLA4/CD28 ligands and
NUMBER OF SEQUENCES: 55
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD, LLP
STREET: 60 State Street
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/479,744A
FILING DATE: June 7, 1995
CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/280,757
FILING DATE: 26-JUL-1994
APPLICATION NUMBER: 08/109,393
FILING DATE: 28-AUG-1993
APPLICATION NUMBER: 08/101,624
FILING DATE: 26-JULY-1993
APPLICATION NUMBER: 08/147,773
FILING DATE: 3-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004CP3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 329 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-479-744A-2

Query Match 11.6%; Score 176.5; DB 3; Length 329;
Best Local Similarity 23.1%; Pred. No. 4.1e-10;
Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

QY 18 AFTTAPADLYVEY-GSNVTMECRFPYERELDLALVYWEKEDVOYIOV-AGEEDLK 75
17 AFLTGAAPLKIOAFNFETADLPQFANSQNSLSELYVFMODENLALNEVYLKEKED 76
QY 76 PQHNSFRGRALPQDLKGNALQITDKODAGVCCIISYGADVKRTITLKVNAYR 135
77 SVHSKRYMGRISFSDS-SWTLRLHNLQIKDKGLYQCII-HHKKPTGMIR-IH 124
DB 136 KINORISVDPATSEHELI-----COA-EGYPAEAVIWTNSDHPVSGKRSV 180
125 QMNSLSVLANFSQPEIYISNITENYINLTCSIHGYPEPK-----KMSV 171
QY 181 -----TTSRTGEM-----LLNVTSSLRV--NATANDVRYC-----TWRBOP 215
172 LKRTKNSLEYDGIQMSQDNVTELYDVISLSVSFPDVTSMNTEFCILETDKTRLLSP 231
QY 216 GQNTAEILIPELPATHPQNRTHV--LLGSILFLIYVSVLFLRKROYMLDVEKCG 273
232 ---FSIELEDPPPPDHP-----WITAVLPVILCVAVFCLIMKKKKRPRNSYKCG 283
DB 274 VEDTSSKNRNDTOFEE 289
DB 284 TMTMERESSEQTKKRE 299

RESULT 14
US-08-280-757B-2
Sequence 2, Application US/08280757B
Patent No. 6130316
GENERAL INFORMATION:
APPLICANT: Freeman, Gordon J.
APPLICANT: Nadler, Lee M.
APPLICANT: Gray, Gary S.
APPLICANT: Greenfield, Edward
TITLE OF INVENTION: No. 6130316el CTLA4/CD28 Ligands and
NUMBER OF SEQUENCES: 53
CORRESPONDENCE ADDRESS:
ADDRESS: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/280,757B
FILING DATE: 26-JUL-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/101,624
FILING DATE: 26-JULY-1993
APPLICATION NUMBER: 08/109,393
FILING DATE: 19-AUG-1993
APPLICATION NUMBER: 08/147,773
FILING DATE: 3-NOV-1993
ATTORNEY/AGENT INFORMATION:
NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: RPI-004CP2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 329 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-280-757B-2

Query Match 11.6%; Score 176.5; DB 3; Length 329;
Best Local Similarity 23.1%; Pred. No. 4.1e-10;
Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

QY 18 AFTTAPADLYVEY-GSNVTMECRFPYERELDLALVYWEKEDVOYIOV-AGEEDLK 75
17 AFLTGAAPLKIOAFNFETADLPQFANSQNSLSELYVFMODENLALNEVYLKEKED 76
QY 76 PQHNSFRGRALPQDLKGNALQITDKODAGVCCIISYGADVKRTITLKVNAYR 135
77 SVHSKRYMGRISFSDS-SWTLRLHNLQIKDKGLYQCII-HHKKPTGMIR-IH 124
DB 136 KINORISVDPATSEHELI-----COA-EGYPAEAVIWTNSDHPVSGKRSV 180
125 QMNSLSVLANFSQPEIYISNITENYINLTCSIHGYPEPK-----KMSV 171
QY 181 -----TTSRTGEM-----LLNVTSSLRV--NATANDVRYC-----TWRBOP 215
172 LKRTKNSLEYDGIQMSQDNVTELYDVISLSVSFPDVTSMNTEFCILETDKTRLLSP 231
QY 216 GQNTAEILIPELPATHPQNRTHV--LLGSILFLIYVSVLFLRKROYMLDVEKCG 273
232 ---FSIELEDPPPPDHP-----WITAVLPVILCVAVFCLIMKKKKRPRNSYKCG 283
DB 274 VEDTSSKNRNDTOFEE 289
DB 284 TMTMERESSEQTKKRE 299

RESULT 15
PCT-US95-02576-23
Sequence 23, Application PC/TUS9502576
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: Novel Forms of T Cell Costimulatory Molecules
NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
ADDRESS: LAHIVE & COCKFIELD
STREET: 60 State Street, Suite 510
CITY: Boston


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STATE: Massachusetts
COUNTRY: USA
ZIP: 02109-1875
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/02576
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/205,697
FILING DATE: 02-Mar-1994
ATTORNEY/AGENT INFORMATION:
NAME: Mandragoras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: BWI-120CPC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 329 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US95-02576-23

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Query Match 11.6%; Score 176.5; DB 4; Length 329;
 Best Local Similarity 23.1%; Pred. No. 4.1e-10;
 Matches 73; Conservative 57; Mismatches 109; Indels 77; Gaps 15;

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QY 18 AFITTAPOKDIYVEY-GSNTMCREPVERELDLALVYWEKEDQVIOFV-AGEEDLK 75
Db 17 AFLUSGAAPLKIDAYFNETADLPQGFANSOSQSLSELVFWQDQENLVINEVYLGRKEFD 76
QY 76 POHSNFRGRASLPKQDLKGNALQITDVKLODAGVYCCIIISYGADYKRITLKVAPYR 135
Db 77 SVHSKYWGRTSPDSD-----SWTLRLHNLQIKRKGIXCII-----HKKPTGMIR-TH 124
QY 136 KIMORISVDPAITSEHELLI-----CQA-EGYPEAEVITWNSDHOVSGKRSV 180
Db 125 QMNSSELVLANFQPEIVPISNITENVYINLTCSIHGYPEPK-----KMSV 171
QY 181 -----TTSRTSGM-----LLNVTSSLRV---NATANDVFC-----TWRKSP 215
Db 172 LLRTKNSITETDGMOKSODNVTETYDVSSISVSFDPVTSNMTIFCILETDKTRLSSP 231
QY 216 GONHTAELLIPELPATHPPONRTHWV-LIGSILFLIYVSTVLEPLRKQVRMLDVEKCG 273
Db 232 ---FSIELEDPPQPPPHIP-----WITAVLPYIICVMVFCLIMKKKKRRPRNSYKCG 283
QY 274 VEDTSSKNRNDIOFEE 289
Db 284 TMTMERESEQTKKRE 299

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Search completed: March 17, 2001, 09:44:52
 Job time: 91 sec

